# **The effects of ownership identities on corporate industrial diversification strategy of Brazilian companies in cross-border M&As**

**Abstract**

In this paper we investigate the role of ownership identities of acquiring Brazilian multinational enterprises in determining industrial diversification strategies in cross-border mergers and acquisitions. Based on institutions-based theory and risk averse arguments, we hypothesize that different ownership types such as government majority ownership and private business group affiliation can influence the diversification strategies when determining related or unrelated international acquisitions. We also argue that the industry diversification strategies abroad will be moderated by cross-country institutional differences between the host country and Brazil.

**Key words**

Government ownership, business group, industrial diversification, cross-border mergers and acquisitions, industry relatedness, emerging market

## **Introduction**

Mergers and Acquisitions (M&As) form one of the most important strategic decisions for a firm. Even though M&As entail high levels of risks and resource commitments (Reuer, Shenkar, and Ragozzino, 2004), evidence across the globe suggests that Cross-Border Mergers & Acquisitions (CB M&As) has become a primary mode of internationalization (UNCTAD, 2000). Particularly for emerging market firms, Outward Foreign Direct Investment (OFDI) has been dominated by CB M&As (Luo and Tung, 2007; UNCTAD, 2000). However, few studies have looked at the strategic decision of industrial diversification in an international context (Rao-Nicholson and Cai, 2018).

As with other Emerging Market Multinational Enterprises (EM MNEs), it is also the case for companies from Brazil. Since the beginning of the 21st century, Brazilian MNEs have used M&As as a strategic tool and preferred mode to enter foreign markets (Cyrino and Barcellos, 2016). On the one hand, when going abroad, some Brazilian companies decide to *diversify* in the value chain. For example, in 2006 Companhia Vale do Rio Doce (CVRD) announced an all-cash unrelated deal to acquire Canadian nickel producer Inco Limited, and according to press release “the combination of CVRD and Inco will create one of the three largest diversified mining companies in the world, with leading global market positions in iron ore, pellets, nickel, bauxite, alumina, manganese and ferroalloys, and an exciting world-class pipeline of projects, supported by a large-scale, long-life and low-cost asset portfolio”(Vale.com, 2006).

On the other hand, the propensity of EM MNEs to engage in *related undiversified* acquisitions in the same industry indirectly reflects their pursuit of a more exploitative (incremental) than explorative (taking lager steps) foreign expansion (Rabbiosi, Elia, and Bertoni, 2012). Degen (2012) documented in a single case study that how JBS has reached an impressive position in the world market using its resource-based horizontal acquisition strategy.

In this paper, we will examine the strategic decisions of MNEs on whether to diversify into unrelated deals or stay in the same industry in foreign markets. *Industrial diversification* implies that firms will target firms belonging to an industry different to their own, and in this paper, it means Brazilian MNEs are buying unrelated targets in a different industry to theirs in foreign markets (Rao-Nicholson and Cai, 2018). Industry relatedness in deal characteristics is reflected in the transfer of key functional skills between businesses and the creation of synergy through economies of scale. This is linked to but different from the international diversification literature, which studies how firms diversify into foreign markets (Hitt, Tihanyi, Miller, and Connelly, 2006). The two streams of literature of international diversification and industry diversification are developed largely separately, and lack of studies in the emerging market context.

**Motivation and research gap**

CB M&As are long-term investments with diverse strategic implications, ranging from exploitation of host country advantages such as natural resources and market opportunities to exploration of advanced technology and other strategic assets (Makino, Lau, and Yeh, 2002). In both scenarios of exploration and exploitation, firms need to decide whether they stay in the same industry or diversify when going abroad. The issue of ownership structures and their interaction of home-host country institutional difference assumes importance here since different acquiring firms may have different strategies to diversify into other industries or stay in the same industry in CB M&As and this would have long-term effects on the development of the MNEs. Industrial diversification in a foreign country will require major commitments as it will require an overhaul of current corporate strategies to reap the potential benefits (Rao-Nicholson and Cai, 2018). Otherwise, potential synergy is limited at best due to the cross-country differences and costs of diversification (Tallman and Li, 1996). Entering an unrelated industry abroad is extremely risky when firms do not have enough experience to deal with the liability of foreignness in the host country and liability of newness in the new industry at the same time (Lu & Beamish, 2004).

There is a gap in the literature regarding how firm ownership characteristics may play a role here. Corporate ownership has been recognized as having a considerable impact on internationalization (Oesterle, Richta, and Fisch, 2013). Internationalization and diversification strategies are largely influenced by firm ownership characteristics that is rooted in the home institutional environment. We argue that most prior studies examining corporate diversification strategies do not consider the overall effect of home and host institutional environments and typology of heterogeneity of different types of firms that are making these decisions. EMFs differ significantly with advanced countries MNEs in terms of initial conditions and their interaction with regards to home-host country institutional distances. In addition, there is significant heterogeneity in Brazilian MNEs in terms of ownership identities and governance structures and strategic implications when going abroad. Few studies looked at the decision of industrial diversification in an international context for Brazilian MNEs. Therefore, we examine how ownership identities will influence industrial diversification strategies when firms venturing abroad by M&As. The **research questions** are as follows:

*Do ownership identities of Brazilian acquirers affect their industrial diversification strategy in cross-border M&As? In particular, we focus on two different types of ownership identities of acquirers (1) Government majority ownership (2) Private business group affiliation. We also look into the effects of these two groups and their interactions with the level of cross-country differences between Brazil and the host country.*

To study this topic, we will introduce the institutions-based view to the diversification literature and examine how ownership identities rooted in the home country will influence risk averse and industry diversification decisions when internationalize. So it is very likely that institutions play a greater role for emerging market acquirers due to the heterogeneity of home country ownership identities (Brockman, Rui, and Zou, 2013; Dinc and Erel, 2013)

The role of corporate ownership identities is especially relevant in the context of an emerging market such as Brazil since the effects of institutions are stronger in emerging economies. Institutional voids in the home country would lead to the importance of owners at the firm-level. Thus, some ownership identities (e.g., private business groups affiliations, state majority ownership) that are typical in an emerging market such as Brazil are not common in advanced countries. Here we will focus on whether two ownership identities (e.g., government ownership, private business group membership) will impact the industry diversification strategy of Brazilian companies in foreign market acquisitions.

The research questions are analysed for a sample of CB M&As of Brazilian acquiring companies. By focusing on one home country (i.e. Brazil), the home-country institutional environment is constant. We find that government majority ownership has a negative impact on a firm’s tendency to diversify beyond its core industry abroad whereas firms belong to private business groups are more likely to diversify. Finally, we find that the effects of acquirer’s ownership identity on diversification choice are moderated by institutional distance between the home country and host countries.

This paper makes several significant contributions to the literature. First of all, we examine the role of ownership identities on diversification strategies in the context of acquirers from an emerging market. This is one of a small number of papers that combine industrial diversification literature and international diversification literature. Different types of firms will tend to follow different rationale and motivations and make disparate decisions regarding industrial diversification while entering foreign markets through acquisitions. The heterogeneity of ownership identities on strategic growth such as diversification is rarely studied in the context of emerging market. In spite of the vital role of ownership in firm strategies in emerging markets, prior studies typically consider each of these ownership types individually in their studies (Cui and Jiang, 2012; Liu and Scott-Kennel, 2011). This paper provides a more comprehensive view of two different types of ownership identities and Brazilian firms diversification strategy. By building on a theoretical framework of institutional arguments, we shed more light on the behaviour of Brazilian acquirers.

Secondly, we also explore moderating factors such as the institutional distance between Brazil and host countries. Our work provides evidence that the impacts of acquirer ownership identity on diversification is linked to institutional distances and country choices.

Thirdly, we contribute to the literature on cross-border industry diversification by introducing the international dimension. Foreign acquisition is often seen as a risky way to put a corporate strategy into action (Cartwright and Schoenberg, 2006). The implications of entering a foreign country while diversifying into a new industry at the same time will be difficult for most firms, and particularly for EM MNEs. By combining two different streams of literature (industry diversification and internationalisation), our results add an international dimension to the industry diversification literature (Hautz, Mayer, and Stadler, 2013).

The reminder of this paper is organized as follows. The next section will provide a theoretical framework and presents our hypotheses. In the third section, we document the methodology and data collection process. The fourth section provides a summary of results and findings. Finally, we conclude this paper with a discussion.

## **Theory and Hypotheses**

**Ownership, risk and diversification-An institutions-based view**

Institutions-based view addresses the context within which the firm’s activities are embedded by focusing on the social and regulatory context. It provides a non-economic explanation of organizational behaviours and strategies (DiMaggio and Powell, 1991). Institutions are the rules of game and consist of formal rules and informal norms (North, 1990). An organization has linkages with dominant formal and informal institutions in the environment, which confer resources and legitimacy (Uhlenbruck, Rodriguez, Doh, and Eden, 2006; Wright, Filatotchev, Hoskisson, and Peng, 2005). Firms need to accommodate strategic choices to handle country-level determinants such as institutional constraints (Uhlenbruck, Rodriguez, Doh, and Eden, 2006).

The literature on EM MNEs point to the importance of the home country institutional environment (Hoskisson, Wright, Filatotchev, and Peng, 2013). The link between Firm-Specific Advantages (FSAs) and Country-specific Advantages (CSAs) is more relevant for BRIC countries (Brazil, Russia, India and China) considering the weakness of their home country environment in firms’ internationalization trajectories.

Institutions not only affect structure and strategies at home but also determine the extent and strategic decision making (Peng, Wang, and Jiang, 2008). Peng et al. (2008) suggest that a fundamental issue in IB is how firm characteristics that are shaped by local institutions influence strategic decisions in an ever-changing business environment. The liberalisation process in emerging countries has changed the business environment and endowments for firms rooted in the institutional contexts.

To mitigate the effects of institutional voids in emerging markets, the role of ownership structure and ownership identity play important functions in the decision such as whether to diversify. Ownership structure has been considered as a potential explanation for diversification (Hautz et al., 2013; Lane, Cannella, & Lubatkin, 1998). In addition, ownership identity (i.e., type of owner) is considered as an essential mechanism to influence firm strategies, such as the decision whether to diversify outside the core industry. According to the corporate governance literature, ownership identity plays a great role in the oversight and incentives management and influences corporate goals (Milhaupt & Zheng, 2014) and strategic choices (Ramaswamy, Li, and Veliyath, 2002). For example, Tihanyi, Johnson, Hoskisson, and Hitt (2003) examined the relationship between institutional ownership, the board of directors and industrial diversification of firms in foreign markets within an agency framework. They argued that in the case of US firms, different types of institutional owners have different stakes in firms’ strategies, and contextual factors such as boards and technological opportunity accentuate these differences. Their results indicate that pension funds’ long-term orientation facilitate internationalization in industries with high technological opportunities. The role of ownership identities is even more prominent in the case of emerging market multinationals. Some owners (such as government and business group) in emerging markets are not common in advanced countries. Therefore, we need to differentiate across different types of ownership. We consider two types of ownership identities (1) acquirer state ownership and (2) acquirer private business group affiliation as mechanisms to fill in institutional voids at home such as weak legal structures.

These two ownership groups share similarities and differences. According to institutions-based theory, institutions are rules of game and firms are embedded in the external institutional environment. However, by definition, state owned enterprises (SOEs) are owned by the government and thus become part of the institutions. State ownership would influence the nature of relationship and decision making within the companies as well as the quality (or lack of) monitoring.

Similar to other emerging countries, business groups in Brazil owe much of their evolution in the national economy to government policies (Aldrighi and Postali, 2010). There are different types of business groups, some are controlled by the state, others are controlled by private entities. In this section, we focus on private business groups, since the above-mentioned issues are not relevant for state owned business groups. For example, financial constraints of the private sector are important for Brazilian companies whereas SOEs have the backing of the government. In addition, access to capital is easy for SOEs while private companies need to mobilise internal resources to investments.

Although both ownership identities identified here are responses to home country institutional environment, they differ significantly. Whereas SOEs serve political goals, private business groups in Brazil usually belong to families and thus profit-seeking. In addition, SOEs usually serve a particular purpose whereas business groups in Brazil are diversified in the domestic market to create an internal capital market.

However, few studies have systematically examined crucial different ownership types in Brazil. In this section, we will look at different types of ownership identities and explore their effects on foreign industry diversification, in the context of Brazilian MNEs.

**Main hypotheses**

**Government ownership**

Governments have long been acknowledged as critical sources of dependency for firms (Lester, Hillman, Zardkoohi, and Cannella Jr, 2008). The government can influence firms in several ways, such as directly taking ownership in SOEs, providing subsidies directly or using regulation and policies. Compared to other forms of influence, direct government ownership or state ownership allows the extensive government control of operations.

Compared to developed economies, government is an influential stakeholder in corporate governance decisions in the context of developing economies (Hoskisson, Eden, Lau, and Wright, 2000). Mergers are a type of business transaction where governments have both the opportunity and the motive to exert considerable influence.

Prior research has indicated that beyond the domestic context, government ownership might also explain the targets that these Chinese companies pursue in their foreign acquisitions. State ownership might dictate the internationalization patterns and motives for cross-border acquisitions (Rui & Yip, 2008). The internationalization of SOEs has become an important phenomenon in international business (Cuervo-Cazurra, Inkpen, Musacchio, & Ramaswamy, 2014). Prior empirical researches support the arguments: In the context of India, government agencies will not be related to diversification strategy (Ramaswamy, Li, and Veliyath, 2002). In a recent study, we document that Chinese SOEs are less likely to diversify in international acquisitions (Rao-Nicholson and Cai, 2018).

In summary, there are several reasons why SOEs are less likely to diversify in international markets. First of all, the motivations to internationalize are different. The corporate governance literature argues that SOEs are supposed to deviate from value maximization in the product market because, governments as firm owners may have different objectives than private agents (Musacchio and Lazzarini, 2014). For example, in the case of Brazilian construction companies, their presence in both national and international contexts could only be understood by examining the military government’s policies for hiring contractor’s services (Dalla Costa, Saes, and Gonçalves, 2018). Therefore, SOEs are less diversified in the domestic market and they tend to replicate this strategy when going abroad. By staying in the same industries, SOEs can serve their non-market strategies, so their international operations serve the same goals as their domestic operations.

Secondly, the behaviour of SOEs differ from private non-SOEs due to different performance measures. SOEs might have additional performance expectations like generating employment, providing public goods and national security. For all of these goals, stability is the key to the success, which will lead to a preference for less risk-taking behaviour in international endeavours.

Thirdly, the diversification discount hypothesis argues that some firms engage in M&As and unrelated deals due to agency costs. Self-interest of manages tend to drive them to pursue M&As to increase their compensation, enhance reputation or reduce employment risk. This is not the case for SOEs since managers of SOEs have different goals. In Brazil CEOs of state-owned companies have more constraints on managerial discretion than their counterparts in private companies(Musacchio, Lazzarini, and Bruschi, 2012).

In short, SOEs are less likely to diversify since the benefits of industrial diversification are observed to be less in the case of government ownership of diversifying firms due to political costs of tunnelling and expropriation (Faccio and Stolin, 2004). Recent studies also have found that regarding valuation diversified SOEs are valued less, thus, providing further evidence of the political cost hypothesis of diversification (Lin and Su, 2008). Therefore, we argue that SOEs differ from private firms since they follow non-market strategies and more risk averse. Thus

*Hypothesis 1 Government ownership of Brazilian MNEs will decrease the likelihood of their industrial diversification in cross-border acquisitions.*

**Business group affiliation**

A business group is a set of legally independent firms bound together by a constellation of formal and informal ties (Khanna and Rivkin, 2001; Khanna and Rivkin, 2006) and coordinated by a central or core entity (Leff, 1978). The importance of business groups and business group membership in emerging economies has been highlighted in various studies (Gaur, Kumar, and Singh, 2014; Khanna and Palepu, 2000; Khanna and Rivkin, 2001; Kim, Hoskisson, Tihanyi, and Hong, 2004; Lu and Yao, 2006).

Prior research in the Western context largely supports the notion that diversification across industries leads to a *conglomerate discount* in the domestic setting. However, the integration with international scope of MNEs might present a different picture. In emerging markets, due to institutional voids, business groups emerge to create internal capital markets and mobilise resources (Khanna and Palepu, 2000). Large business groups tend to diversify in international deals to tap into upstream and downstream industries to consolidate market power to help with their position in the domestic market (Hoskisson, Johnson, Tihanyi, and White, 2005).

In emerging market context, it has been observed that companies that are part of a business group are more likely to diversify across industries in their home country, which researchers have argued is due to their favourable position in the local political ecosystem (Khanna and Yafeh, 2007). Empirical studies tend to support the view that firms affiliated with business groups benefit from diversification in domestic markets. For example, Khanna & Palepu (2000) argued that in India, business groups create an internal market and affiliation of the most diversified business groups outperform unaffiliated firms. However, these observations have been made mostly for domestic acquisitions (Khanna and Palepu, 2000; Khanna and Rivkin, 2001; Lu and Yao, 2006), and have been linked to explanations like market imperfections, survivability prowess, weak contract enforceability.

We argue that Brazilian acquiring firms affiliated with private business groups are more likely to diversify in international markets compared to those unaffiliated ones. To start with. In Brazil, high tariffs, underdeveloped capital markets, inadequate levels of research and development, turbulent political and economic climate has historically created market domination by family-owned conglomerates. These business group conglomerates preferred sector diversification in domestic markets (Casanova and Kassum, 2013). Some scholars have suggested that when the opportunities to diversify at home become restrictive, diversified business groups can be encouraged to internationalize (Borda-Reyes, 2012). Recent study has documented a positive effect of participating in a conglomerate or other business group on the process of internationalization of Brazilian companies (Goncalves, Filho, Alberto Nascimento, Casanova, and do Valle Jardim, Paula Esteban, 2012). Therefore, their internationalization strategies are more of an escape from domestic markets in which they will replicate their strategies at home (Cuervo-Cazurra, 2016).

Secondly, acquirers associated with business groups tend to establish market power at home first before going abroad. Engaging in related deals will help them consolidate market power and have more synergy in integrating the acquirers and targets.

Thirdly, in conglomerate mergers, bidders built up diversified groups by adding capital and know-how to targets. Companies are more likely to mimic this behaviour when abroad and engage in diversifying deals.

Therefore, Hypothesis 2 posits that:

*Hypothesis 2* *Private business group membership of Brazilian MNEs will increase the likelihood of their industrial diversification in cross-border acquisitions.*

## **Moderating factors-institutional distance**

Besides ownership identity, the location choice of Brazilian MNEs when they acquire foreign companies also vary. An organization has linkages with dominant formal and informal institutions in the environment, which confer resources and legitimacy (Peng, Wang, and Jiang, 2008). Institutional barriers and liability of foreignness (e.g. laws, regulations and cultural differences) will increase tangible and intangible costs (Amal and Tomio, 2015; Wei and Wu, 2015).

Some firms enter neighbouring Latin American countries with low *institutional distance* from Brazil while others venture into advanced countries with a large institutional distance. The term “institutional distance” designates a diﬀerence or similarity between home and host countries in terms of institutional environments (Kostova, 1999). Institutional distance increases information asymmetry between partners. In international acquisitions, both acquirers and targets have to make sense of, manipulate, negotiate and partially construct their institutional environment (Kostova, Roth & Dacin, 2008). The acquirer has to deal with liability of foreignness (Zaheer, 1995), e.g. in terms of regulatory structures, governmental agencies, laws courts, professions and also interest groups and public opinion (Oliver, 1991:147) in the host country. These differences in institutions between home and host countries are often conceptualized as the institutional distance (Kostova, 1999; Xu & Shenkar, 2002). Most previous studies posit that a large institutional distance augments the likelihood of an M&A deal to fail and the time it takes to complete a deal (Reis, Ferreira, and Santos, 2013), thus increasing the risks for deals.

For Brazilian acquirers, Latin American host countries share a lot of similarities such as political system, pro-market reforms and reversals (Cuervo-Cazurra, 2016). Cuervo-Cazurra and Genc (2008) found that EM MNEs have developed non-market resources, capabilities and core competencies at home and know how to operate in difficult institutional environments. Therefore, these companies will have a competitive edge over developed country counterparts when entering less developed countries. Similarly, Brazilian companies will be very familiar with countries with a low institutional distance.

An increasing number of EM MNEs acquire targets in developed countries, or sometimes referred to as *reverse takeovers* (Fleury and Fleury, 2014b). In advanced countries, related acquisitions are usually part of consolidation of major industries, and part of response to deregulation (Shleifer and Vishny, 2003). It is established in the EM MNEs literature that the internationalization of EM MNEs cannot be explained without paying attention to the previous development of the domestic firms in their quest for generating ownership-based advantages that can be exploited abroad (Fleury and Fleury, 2014a). In Brazil during early stages of development, the industrial policies stimulated local firms to focus on the large domestic market and pay little importance to external market (Pinto, Ferreira, Falaster, Fleury, & Fleury, 2017). Fleury & Fleury (2014) argue that in many cases, the acquisitions by Brazilian multinational enterprises in North America mean the total or partial replacement of developed country firms in mature or sunset industries.

Firms may have different diversification strategies when they enter other emerging markets with similar institutional distance compared to when they decide to venture into advanced country targets. Due to institutional voids and high transaction costs, EM MNEs have different portfolio in the home country compared to advanced country firms (Manikandan and Ramachandran, 2014). Generally, EM MNEs are more diversified in the home country (Stoian and Mohr, 2016). Despite privatization, firms may develop their strategies abroad to mimic domestic behaviour. In the case of Brazil, Brazilian MNEs delay internationalization to focus instead on the internal market (Goncalves, Filho, Alberto Nascimento, Casanova, and do Valle Jardim, Paula Esteban, 2012).

In cross-border deals, when host countries are characterized by more sophisticated institutional development and corporate governance systems, the level of information asymmetry is reduced and less bureaucracy expected in the host. For an emerging market (such as Brazil), potential host countries with a large institutional distance are more often developed countries. Instead of increasing uncertainty with increasing distance, the institutional difference denotes the improvement in institutional quality compared to the home country. So host countries with large institutional distance have low levels of risk and uncertainty and thus shorter deal completion. Contrary to previous studies on developed country acquirers, we would expect that

*Hypothesis 3 The relationship between SOE and diversification is moderated by institutional distance that SOEs are more likely to diversify in countries with large institutional distance.*

Business groups are rooted within their institutional environment in their home countries, thus hindering their adaptation when they internationalize to countries with different institutional characteristics (Pedersen and Stucchi, 2014). Therefore, we argue that in order to reduce risks business groups are less likely to diversify in host countries with large institutional distance due to unfamiliarity with the environment.

On the other hand, compared to business group affiliated firms, non-affiliated firms are more likely to suffer from agency costs and empire building motives of managers, especially when acquiring targets in advanced countries. In the context of Brazil, private business groups are usually controlled by families, thus less likely to suffer from this principal-agent costs (Cuervo-Cazurra, 2006).

*Hypothesis 4 The relationship between private business group and diversification is moderated by institutional distance that business group affiliated firms are more likely to diversify in countries with small institutional distance and non-group affiliated firms are more likely to diversify in countries with large institutional distance.*

Insert Figure 1 About Here

## **Methodology**

**Data**

Our sample consists of 516 deals by Brazilian acquirers between 2000 and 2014. The deal information is collected from Bureau van dijk’s Zephyr and Thomson SDC database. Company data is hand collected from Orbis, annual reports and other business sources. Some descriptive statistics of the sample are provided in Table 1. Of the sample of 516 CBA deals by Brazilian acquirers, 363 deals are classified as diversified (70.35%), whereas related undiversified deals only have 153 (29.65%). The percentage of diversified deals is similar to our recent study on whether Chinese acquirers (67% of diversified deals) would diversify in cross-border M&As (Rao-Nicholson and Cai, 2018).

Insert Table 1 about here

**Variables**

*Dependent variable*

The main dependent variable *Diversify* is a dummy which takes the value of one if the target does not belong to the same primary core industry as the acquirer and zero otherwise. A firm’s core business is commonly defined as the business segment that generates the most significant revenue for the firm (Rumelt, 1974). Following existing literature, we define a firm’s core business industry as the four-digit US Primary Standard Industry Classification (SIC) industry. Acquisitions are classified as diversified if the acquiring firm is not in the same business segment as the target identified by four-digit US SIC codes (Denis, Denis, and Yost, 2002; Moeller and Schlingemann, 2005; Shleifer and Vishny, 2003). By checking for match of all four digits would imply testing for horizontal mergers between firms within the same primary economic activities (Barai and Mohanty, 2014) or whether the deals are diversified deals. Thus, deals which are not matched at the 4-digit level are deemed as unrelated diversification.

*Independent variables*

We created two mutually exclusive categories of ownership to avoid confounding our results between different kinds of ownership. We use a dummy variable *Acquirer government* to indicate whether the acquirer is a government-owned enterprise or government is the majority stakeholder in this firm. We obtained this information from various sources like BvD’s Orbis database, company websites, annual filings and newspaper articles. This variable takes value one if there is evidence of government ownership or zero in other cases. The dummy variable *Acquirer private business group* is used to indicate if the Brazilian acquiring company is part of a business group. This variable takes the value one if true, zero otherwise. We used firm-level information from the Orbis database and Aldrighi & Postali (2010) to classify our acquirers. This business group affiliated firm can be either government-owned business group or private business group, to avoid duplication of cases, we have removed BGs that belong to SOEs. Aldrighi & Postali (2010) use consolidated BG data based on Valor Grandes Grupos magazine, published by Valor Económico Journal. This is widely used as the source of data for identifying business groups in Brazil. For example, Xavier et al. (2014) also used the Valor Económico as the source of identifying biggest business groups in Brazil. This is widely used to identify BGs in Brazil. To avoid duplication of cases, we have removed business groups that belong to SOEs.

*Moderator*

Our moderating variable is the *Institutional distance* between Brazil and host country. This index measures the difference of formal governance quality based on World Governance Indicators (Kaufmann, Kraay, and Mastruzzi, 2009). The index consists six dimensions (voice and accountability, political stability, government effectives, regulatory quality, rules of law and control of corruption) and the value of each dimension ranges between -2.5 and +2.5. We follow Dikova (2009) to calculate a composite in which a larger distance indicates greater difference between the home and host. It is important to note that for Brazil as a country with relative underdeveloped institutions, host countries with larger institutional distance are advanced countries such as US.

*Control variables*

We also include various controls for variation in the data arising from numeroussources: the deal-level, firm-level, sector-level and country-level differences. We control deal characteristics such as acquired stake. *Acquired stake* is measured by the percentage of target acquired. It is expected that when acquirers diversify into unrelated industries, they might take a partial equity stake to reduce risks. We also control whether the acquirer and target are listed on the stock exchange (*Acquirer listed and Target listed*). Leading business groups in Brazil usually have their main firms listed on the stock exchange (typically Level 1 of BM&Bovespa). Having access to the capital markets might influence firm’s availability of financial resources (Rao-Nicholson and Cai, 2018). In addition, we control for other acquirer characteristics such as whether the acquirer belong to the *high-tech industry, acquirer age* and *acquirer prior CB M&A experience*. Acquirer experience of prior CB M&A deals will also influence the likelihood of diversification as experience in deals will diminish the risk to enter a new industry. We have also controlled for *acquirer ownership concentration.* Ownership concentration is a response to weak corporate governance institutions and thus will influence internationalization. We control for ownership concentration by including three dummy variables (Highly dispersed, moderate and Concentrated) (Bhaumik, Driffield, and Pal, 2010). We use the BvD Independence indicator from Orbis and Zephyr for the measurement of ownership concentration. This indicator refers to each company's degree of independence regarding its shareholders (BvD website). Where A indicates that there is no shareholder with shareholdings more than 25%, B indicates that there is no shareholder with shareholdings more than 50% and at least one with shareholdings more than 25%, and C and D indicate a company that has at least one shareholder with shareholdings more than 50%. We operationalize firm ownership concentration variable by converting the BvD independence indicator into an ordered variable taking the value of 3 for highly concentrated (Largest owner >50%, BvD “C” and “D”), 2 for moderately concentrated (Between 25% and 50%, BvD “B”) and, 1 for dispersed (<25%, BvD “A”). Thus a highly concentrated company is one where a single shareholder has owned directly/indirectly no less than 50% of the voting capital. In companies with moderate concentration, the largest shareholder held between 25% and 50% of the share. The direct and total percentage of shares held by the largest shareholder (extent of single largest holding) denotes the extent of concentration in the acquirer. This is in line with other studies such as Bhaumik & Selarka (2012) in measuring ownership concentration. They also use a 25 and 50 percent separately as cut-offs in their studies to indicate that the owners may exert some effective control at this level of ownership. *Logdistance* isthe logarithm of the geographical distance between Brazil and the host country. EM MNEs would invest primarily in countries that are culturally and geographically closer to the home country (Fleury and Fleury, 2014b). Although the geographic scope of Brazilian MNEs has expanded significantly, a large number of their operations abroad are still concentrated in Latin America (FDC-­CPII (Fundação Dom Cabral and Columbia University. Vale Columbia Center on Sustainable International Investment), 2007). In addition, to control for differences across acquiring firm sectors, we control for sector dummies and year dummies are included.

**Model specification**

Similar to Rao-Nicholson & Cai (2018), since the dependent variable is a binomial variable (Diversification) we use Probit regression analysis to examine the relationships between the ownership identities and diversification. These regressions can be estimated by the maximum likelihood method. The model can be summarized as:

$$Y\_{n}=b\_{0}+b\_{i}X\_{i}+b\_{j}I\_{j}+b\_{k}C\_{k}+e$$

where: Yn is the dependent variable, Xi stands for independent variables, Ij are the moderating variables, and Ck denotes control variables. The coefficients in Probit models cannot be interpreted directly, so we will use marginal effects and plot the interaction terms.

**Descriptive statistics**

Insert Table 2 and Table 3 about here

Table 2 and Table 3 present some descriptive statistics of the sample by looking at distribution of the sample. Table 2 presents a picture of host countries. It is clear that the top host countries include both Latin American countries (such as Argentina and Uruguay) as well as advanced countries. This is not surprising as these are the common host countries for OFDI from Brazil. Table 3 reveals a breakdown of sectors by acquiring Brazilian company. According to the table, almost half the deals belong to manufacturing sector.

## **Findings**

Insert Table 4 and Table 5 about here

Table 4 and Table 5 presents pairwise correlation across all the variables. To analyse potential issues of multicollinearity, we also calculated variance inflation factors (VIF). The mean VIF is 1.6, far below the standard cut-off point of 10 for indicating presence of multicollinearity. The highest VIF is 2.63 for acquirer ownership concentration. This may be due to the fact that SOEs are by definition concentrated.

**Main regression results**

Insert Table 6 about here

Table 6 reports the results of our probit estimations. The results indicate that the probability of unrelated diversifying deals.

Model 1 is the baseline model with only control variables. For the control variables, we find that acquirers engage in diversification are more likely to have a concentrated owner and tend to make cash payments. This might due to the differences in decision-making for concentrated versus dispersed firms.

In Model 2 and Model 3 separately, we have included the direct effects of acquirer state ownership and private business group affiliation. We find that when the Brazilian acquirer is a SOE, it is less likely to diversify in CBAs (β=-0.490, p=0.1). The finding is consistent with the Hypothesis 1 that SOEs may serve a political motive, more risk averse and tend to stay in the same industry compared to other companies. Model 3 indicates that acquirers affiliated with private business groups tend to have more likelihood of diversification but the results are not statistically significant(β=0.00769).

To further explore, we included the moderating variable of institutional distance in Model 4 and Model 5 separately. In Model 4, we have included the interaction term between acquirer state ownership and institutional distance. The results suggest that institutional distance has a moderating effect on the role of state ownership and likelihood of diversification. In Model 5, similarly we look at the interaction term between BG affiliation and diversification. We find that again institutional distance has a moderating effect on this relationship. We will also include the margins plot to interpret the results of interaction terms. The results in Model 4 and Model 5 confirm our conjecture that institutional distance has a moderating effect on acquirer SOE and acquirer BG affiliation, supporting Hypothesis 3 and Hypothesis 4. Model 6 is the full model with all the independent variables and interaction terms. Compared to the baseline model, the predicative power of Model 6 is better. The results in Model 6 indicate that after including all interaction terms at the same time, the results still hold, thus again confirming the hypotheses above.

**Interpretation of results**

**Moderation terms of institutional distance**

To interpret the interaction terms, we have created the margins plot using STATA. According to Figure 2 and Figure 3, the role of institutional distance has a moderating effect on both state ownership and private business group affiliation. In general, institutional distance has a positive effect on the likelihood of diversifying into unrelated deals. In other words, for Brazilian acquirers, when entering other Latin American countries with similar institutional distance, they tend to stay in the same industry. On the other hand, when they acquire targets in advanced countries with large institutional distance, they tend to diversify into the value chain.

Insert Figure 2 and Figure 3 about here

According to Figure 2, the likelihood to diversify in countries with large or small institutional distance differs significantly for SOEs and other firms. For both SOE and non SOEs, institutional distance has a positive effect on the likelihood of diversifying into unrelated deals (although the impact is different). However, for state owned Brazilian acquirers, when entering other Latin American countries with similar institutional environment (low institutional distance), they tend to stay in the same industry (i.e. less likely to diversify), probably to capture the market in neighbouring countries. On the other hand, when they acquire targets in advanced countries with large institutional distance, they tend to diversify into the value chain. The effects are less prominent for non-state-owned firms. This finding is similar to anecdotal evidence that Brazilian companies may prefer to acquire in advanced countries as a strategic move (da Silva, da Rocha, and Carneiro, 2009).

According to Figure 3, business group-affiliated and non-affiliated firms behave differently according to differences in institutional environment. For private firms affiliated with business groups, acquiring Brazilian acquirers are more likely to diversify in countries with very low institutional distance. When they go to countries with median or large institutional distance (such as advanced countries), they are less likely to diversify. This may be due to the fact that private groups are usually controlled by families using pyramidal structures and thus more risk averse in face of large institutional distance. On the other hand, for private non-group-affiliated firms, acquirers tend to stay in the same industry to reduce risk in the advanced markets. Group affiliated acquirers are less likely to diversify in countries with low institutional distance. On the contrary, non-group firms are more likely to diversify in countries with large institutional distance. This could due to agency costs and empire building motives of managers (Cuervo-Cazurra, 2006).

## **Robustness checks**

**New dependent variable**

To determine the level of relatedness or diversification, we rely on the standard industry classification system and the extent to which industries belong to the same broad industrial sectors. We follow similar studies such as Barai & Mohanty (2014) and Haleblian and Finkelstein (1999), we measure the level of diversification between the acquiring and target firms using US SIC match.

Insert Table 8 and Table 9 about here

Table 8 provides the details for generating the continuous variable for the level of diversification (Diversify4). We identify diversification at 1-digit, 2-digit, 3-digit and 4- digit levels. Table 9 provides the results of robustness checks for which the new dependent variable( diversify4) is the level of diversification. According to Table 9, the results are in line with our main regression results.

## **Discussion and conclusion**

## **Theoretical and empirical contributions**

To summarise, this paper makes several important contributions. To start with, this is among one of the first papers to combine industrial diversification and international diversification in the context of emerging market acquirers. The theoretical framework of the paper can be seen as an extension to Rao-Nicholson & Cai (2018). This paper delves deeper into the underlying mechanisms driving the differences different types of ownership structures at home. These structures have deep roots at home country and how they translate into organisational strategies abroad differ.

Secondly, we have built up a theoretical framework rooted in institutions-based view on how ownership identities of firms might determine the choice of industry diversification abroad. Specifically, we examine the impact of ownership identities on MNEs’ industrial diversification in cross-border acquisitions.

Thirdly, the empirical context of the paper is Brazilian MNEs and their diversification strategies in international acquisitions. The findings of the paper demonstrate a systematic way of understanding industrial diversification strategy by Brazilian acquirers. Some of the arguments can be generalized to other emerging markets such as Latin American countries (Aguilera, Ciravegna, Cuervo-Cazurra, and Gonzalez-Perez, 2017; Cuervo-Cazurra, 2016).

## **Limitations**

As with other studies, this paper is not without its limitations. First of all, to unpack ownership identities, we haven’t studied more complex combination of ownership characteristics such as minority government ownership in acquirers and state-owned business groups. For example, in a previous paper, we have studied the influence of leviathan as a minority shareholder through equity stakes such as the development bank and document that this might influence the likelihood of deal completion for Brazilian acquirers (Cai, van Veen, and Gubbi, 2014). A recent study also documents that in Brazil minority government ownership has a positive impact on firms returns on assets and on the capital expenditures in investment opportunities (Inoue, Lazzarini, and Musacchio, 2013).

Secondly, we haven’t studied how domestic experience influence cross-border decision making. Current level of industry diversification in the domestic market may have an influence on the likelihood of diversification in foreign markets. Future studies might look into this in more detail and study how domestic experience in M&As (both successful and failures) would influence cross-border deals when they internationalize (Muehlfeld, Rao Sahib, and Van Witteloostuijn, 2012).

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## **Appendices**

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Acquirer majority state owned (H1)

Diversification in CB M&A deals

Institutional distance (H3 and H4)

Acquirer private business group (H2)

Figure Interaction plot for acquirer SOE, institutional distance and likelihood to diversity



Figure Interaction plot for business groups ,institutional distance and the likelihood to diversity



List of Tables

Table Deal distribution

|  |  |  |
| --- | --- | --- |
| **Diversify** | **Frequency** | **Percent** |
| 0 | 153 | 29.65 |
| 1 | 363 | 70.35 |

Total:516

Table Deal distribution by host countries

|  |  |  |
| --- | --- | --- |
| Country | Freq. | Percent |
| United States | 80 | 15.50 |
| Argentina | 79 | 15.31 |
| Portugal | 33 | 6.40 |
| Uruguay | 29 | 5.62 |
| Chile | 27 | 5.23 |
| Colombia | 24 | 4.65 |
| Peru | 22 | 4.26 |
| Mexico | 20 | 3.88 |
| Spain | 18 | 3.49 |
| Canada | 15 | 2.91 |
| United Kingdom | 13 | 2.52 |
| Australia | 12 | 2.33 |
| France | 12 | 2.33 |
| Italy | 10 | 1.94 |

Table Sector distribution

|  |  |  |  |
| --- | --- | --- | --- |
| Sector | Undiversified | Diversified | Total |
| Agriculture | 0 | 24 | 24 |
| Construction | 1 | 9 | 10 |
| Finance | 24 | 46 | 70 |
| Manufacturing | 89 | 167 | 256 |
| Mining | 16 | 52 | 68 |
| Retail | 3 | 1 | 4 |
| Services | 9 | 28 | 37 |
| Transportation | 10 | 25 | 35 |
| Wholesale | 1 | 11 | 12 |
|  |  |  |  |
| Total | 153 | 363 | 516 |

Table Correlation table

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   |  Variable | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |   |
| 1 | diversify | 0.7 | 0.46 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | Acquirer SOE | 0.09 | 0.28 | -0.03 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | Private BG | 0.42 | 0.49 | 0.04 | -0.26\*\*\* | 1 |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Acquirer age | 41.91 | 37.09 | 0.04 | 0.20\*\*\* | 0.23\*\*\* | 1 |  |  |  |  |  |  |  |  |  |  |
| 5 | Acquirer experience | 5.82 | 9.94 | 0.04 | 0.49\*\*\* | 0.20\*\*\* | 0.33\*\*\* | 1 |  |  |  |  |  |  |  |  |  |
| 6 | Acquirer hightech | 0.26 | 0.44 | -0.05 | -0.18\*\*\* | -0.28\*\*\* | -0.07 | -0.18\*\*\* | 1 |  |  |  |  |  |  |  |  |
| 7 | Acquirer list | 0.65 | 0.48 | -0.03 | 0.19\*\*\* | 0.25\*\*\* | 0.32\*\*\* | 0.37\*\*\* | -0.11\*\* | 1 |  |  |  |  |  |  |  |
| 8 | Target list | 0.22 | 0.42 | 0.01 | -0.01 | 0.24\*\*\* | 0.17\*\*\* | 0.05 | -0.07 | 0.09\*\* | 1 |  |  |  |  |  |  |
| 9 | Concentrate | 0.79 | 0.41 | 0.12\*\*\* | 0.16\*\*\* | 0.15\*\*\* | 0.17\*\*\* | 0.18\*\*\* | -0.12\*\*\* | -0.20\*\*\* | 0.06 | 1 |  |  |  |  |  |
| 10 | Moderate | 0.13 | 0.34 | -0.11\*\* | -0.12\*\*\* | 0.01 | -0.14\*\*\* | -0.10\*\* | 0.05 | 0.24\*\*\* | -0.00 | -0.76\*\*\* | 1 |  |  |  |  |
| 11 | Acquired stake | 70.99 | 34.64 | -0.00 | -0.06 | -0.18\*\*\* | -0.14\*\*\* | -0.10\*\* | 0.07 | -0.05 | -0.42\*\*\* | -0.05 | -0.01 | 1 |  |  |  |
| 12 | Deal cash | 0.23 | 0.42 | 0.09\* | -0.05 | 0.21\*\*\* | 0.12\*\*\* | 0.045 | -0.08\* | 0.10\*\* | 0.24\*\*\* | 0.06 | -0.04 | -0.13\*\*\* | 1 |  |  |
| 13 | instdistance | 0.23 | 0.19 | 0.09\* | -0.06 | 0.10\*\* | -0.04 | -0.010 | -0.13\*\*\* | 0.00 | 0.04 | 0.08\* | -0.08\* | 0.14\*\*\* | 0.01\*\* | 1 |  |
| 14 | logdistance | 8.60 | 0.73 | 0.05 | -0.10\*\* | 0.05 | -0.01 | -0.04 | 0.01 | 0.010 | 0.10\*\* | 0.06 | -0.04 | 0.04 | 0.07\* | 0.41\*\*\* | 1 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table VIF

|  |  |  |
| --- | --- | --- |
| Variable | VIF | 1/VIF |
| concentrated | 2.63 | 0.380156 |
| moderate | 2.48 | 0.402937 |
| acq\_SOE | 1.84 | 0.542988 |
| Private BG | 1.75 | 0.572814 |
| acq\_experience | 1.71 | 0.585835 |
| acq\_list | 1.48 | 0.677463 |
| tar\_list | 1.34 | 0.747168 |
| acq\_age | 1.3 | 0.769105 |
| acquiredstake | 1.29 | 0.774689 |
| inst\_distance | 1.28 | 0.782422 |
| logdistance | 1.23 | 0.811523 |
| acq\_hightech | 1.2 | 0.834642 |
| deal\_cash | 1.1 | 0.906198 |
|  |  |  |
| Mean | VIF | 1.59 |

 |

Table Main regression results

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
| VARIABLES | diversify | diversify | diversify | diversify | diversify | diversify |
|  |  |  |  |  |  |  |
| Acquirer SOE |  | -0.490\* |  | -1.442\*\*\* |  | -1.447\*\*\* |
|  |  | (0.288) |  | (0.356) |  | (0.421) |
| Acquirer private BG |  |  | 0.00769 |  | 0.429\* | 0.362 |
|  |  |  | (0.200) |  | (0.252) | (0.278) |
| Acquirer SOE×  |  |  |  | 5.484\*\*\* |  | 5.071\*\*\* |
| institutional distance |  |  |  | (1.145) |  | (1.316) |
| Acquirer private BG  |  |  |  |  | -1.996\*\* | -1.666\*\* |
| × institutional distance |  |  |  |  | (0.789) | (0.760) |
|  |  |  |  |  |  |  |
| **Controls** |  |  |  |  |  |  |
| Institutional distance |  |  |  | 0.219 | 1.330\*\* | 0.903\* |
|  |  |  |  | (0.411) | (0.586) | (0.535) |
| Acquirer age | 0.00176 | 0.00226 | 0.00175 | 0.00253 | 0.00198 | 0.00204 |
|  | (0.00225) | (0.00218) | (0.00231) | (0.00220) | (0.00234) | (0.00237) |
| Acquirer experience | -0.00128 | 0.00189 | -0.00136 | -0.00102 | -0.00249 | -0.00529 |
|  | (0.00797) | (0.00756) | (0.00820) | (0.00753) | (0.00864) | (0.00804) |
| Acquirer hightech | 0.0423 | 0.0318 | 0.0443 | 0.0485 | 0.0634 | 0.00547 |
|  | (0.227) | (0.228) | (0.224) | (0.228) | (0.225) | (0.225) |
| Acquired stake | 0.000578 | 0.000515 | 0.000585 | 0.000147 | 0.000370 | 4.79e-05 |
|  | (0.00236) | (0.00242) | (0.00236) | (0.00252) | (0.00241) | (0.00250) |
| logdistance | 0.0916 | 0.0750 | 0.0916 | 0.0299 | 0.0537 | 0.0752 |
|  | (0.0925) | (0.0912) | (0.0925) | (0.107) | (0.108) | (0.114) |
| Acquirer list | -0.0350 | -0.0285 | -0.0356 | -0.00266 | -0.0256 | 0.102 |
|  | (0.192) | (0.192) | (0.189) | (0.192) | (0.190) | (0.199) |
| Target list | -0.134 | -0.155 | -0.136 | -0.165 | -0.123 | -0.186 |
|  | (0.207) | (0.218) | (0.208) | (0.222) | (0.208) | (0.225) |
| Deal cash | 0.251 | 0.217 | 0.250 | 0.232 | 0.247 | 0.241 |
|  | (0.156) | (0.153) | (0.161) | (0.159) | (0.165) | (0.164) |
| Acquirer  | 0.418\* | 0.433\* | 0.416\* | 0.441\* | 0.417 | 0.528\*\* |
| concentrated | (0.242) | (0.242) | (0.250) | (0.245) | (0.261) | (0.259) |
| Acquirer moderate | 0.150 | 0.159 | 0.149 | 0.158 | 0.152 | 0.0849 |
|  | (0.366) | (0.368) | (0.357) | (0.372) | (0.365) | (0.368) |
| Sector dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | 4.002\*\*\* | 4.341\*\*\* | 4.000\*\*\* | 4.682\*\*\* | 4.150\*\*\* | 4.130\*\*\* |
|  | (0.659) | (0.643) | (0.661) | (0.736) | (0.708) | (0.795) |
|  |  |  |  |  |  |  |
| Observations | 516 | 516 | 516 | 516 | 516 | 516 |
| loglikelihood | -285.9 | -284.6 | -285.9 | -280.3 | -281.4 | -282.8 |
| r2\_p | 0.0884 | 0.0926 | 0.0884 | 0.106 | 0.103 | 0.0984 |
| chi2 | 550.6 | 784.4 | 547.0 | 1311 | 616.7 | 826.6 |
| p | 0 | 0 | 0 | 0 | 0 | 0 |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table Interpretation of results

|  |  |  |
| --- | --- | --- |
|  | Expected sign | Results |
| H1 SOE less likely to diversify in CBAs | - | Significant |
| H2 Private BGs more likely to diversify in CBAs | + | Expected sign but insignificant |
| H3 The relationship between SOE and diversification is moderated by institutional distance that SOEs are more likely to diversify in countries with large institutional distance.  | the interaction term | Significant |
| H4 The relationship between BG and diversification is moderated by institutional distance that BG affiliated firms are more likely to diversify in countries with small institutional distance. | the interaction term | Significant |

Table Generating indicator for robustness checks

|  |  |
| --- | --- |
| Level of diversification | Description |
| Diversification = 0 | All 4 digits of primary SIC codes match  |
| Diversification = 1 | First 3 digits of primary SIC codes match |
| Diversification = 2 | First 2 digits of primary SIC codes match |
| Diversification = 3 | First 1 digit of primary SIC codes match |
| Diversification = 4 | No primary SIC codes match |

Table Robustness checks: Level of diversification

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
| VARIABLES | diversify4 | diversify4 | diversify4 | diversify4 | diversify4 | diversify4 |
|  |  |  |  |  |  |  |
| Acquirer SOE |  | -0.168 |  | -0.783\*\*\* |  | -0.713\*\*\* |
|  |  | (0.157) |  | (0.228) |  | (0.267) |
| Acquirer private BG |  |  | 0.0416 |  | 0.246\* | 0.163 |
|  |  |  | (0.0946) |  | (0.138) | (0.155) |
| Acquirer SOE×  |  |  |  | 2.870\*\*\* |  | 2.550\*\*\* |
| institutional distance |  |  |  | (0.605) |  | (0.638) |
| Acquirer private BG  |  |  |  |  | -0.837\*\* | -0.660\*\* |
| × institutional distance |  |  |  |  | (0.335) | (0.335) |
| **Controls** |  |  |  |  |  |  |
| Institutional distance | 0.411\* | 0.391\* | 0.404\* | 0.300 | 0.772\*\*\* | 0.603\*\* |
|  | (0.215) | (0.217) | (0.214) | (0.206) | (0.293) | (0.290) |
| Acquired stake | -0.00159 | -0.00162 | -0.00155 | -0.00159 | -0.00136 | -0.00143 |
|  | (0.00119) | (0.00120) | (0.00120) | (0.00116) | (0.00119) | (0.00117) |
| Acquirer age | 0.00149 | 0.00164 | 0.00146 | 0.00162 | 0.00144 | 0.00161 |
|  | (0.00136) | (0.00128) | (0.00136) | (0.00129) | (0.00137) | (0.00134) |
| Acquirer experience | 0.000364 | 0.00176 | 6.91e-05 | 0.000445 | -0.000524 | 6.00e-05 |
|  | (0.00442) | (0.00440) | (0.00417) | (0.00475) | (0.00436) | (0.00485) |
| Acquirer hightech | -0.0580 | -0.0599 | -0.0469 | -0.0654 | -0.0449 | -0.0615 |
|  | (0.130) | (0.130) | (0.131) | (0.130) | (0.127) | (0.128) |
| Acquirer listed | -0.0738 | -0.0710 | -0.0809 | -0.0602 | -0.0740 | -0.0563 |
|  | (0.107) | (0.107) | (0.106) | (0.106) | (0.105) | (0.103) |
| Target listed | -0.263\*\* | -0.273\*\* | -0.271\*\* | -0.258\*\* | -0.250\*\* | -0.243\*\* |
|  | (0.115) | (0.117) | (0.115) | (0.112) | (0.109) | (0.108) |
| logdistance | -0.00508 | -0.00831 | -0.00543 | -0.0168 | -0.00462 | -0.0154 |
|  | (0.0591) | (0.0583) | (0.0597) | (0.0574) | (0.0613) | (0.0586) |
| Deal cash | 0.0906 | 0.0782 | 0.0855 | 0.0838 | 0.0797 | 0.0785 |
|  | (0.0784) | (0.0794) | (0.0807) | (0.0802) | (0.0793) | (0.0805) |
| Acquirer  | 0.159 | 0.162 | 0.145 | 0.169 | 0.135 | 0.159 |
| concentrated | (0.140) | (0.139) | (0.144) | (0.138) | (0.146) | (0.145) |
| Acquirer moderate | 0.0189 | 0.0205 | 0.00724 | 0.0189 | -0.00104 | 0.0123 |
| concentration | (0.235) | (0.236) | (0.228) | (0.236) | (0.225) | (0.227) |
| Constant | 1.001\* | 1.032\* | 0.988\* | 1.132\*\* | 0.938 | 1.081\*\* |
|  | (0.558) | (0.550) | (0.560) | (0.534) | (0.578) | (0.548) |
|  |  |  |  |  |  |  |
| Observations | 516 | 516 | 516 | 516 | 516 | 516 |
| loglikelihood | -980.0 | -979.3 | -979.9 | -974.0 | -976.7 | -972.2 |
| r2\_p | 0.0500 | 0.0507 | 0.0501 | 0.0558 | 0.0532 | 0.0576 |
| chi2 | 197.1 | 240.5 | 220.5 | 285.7 | 195.8 | 261.1 |
| p | 0 | 0 | 0 | 0 | 0 | 0 |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1